REMARKS

Claims 1-8 are pending in the application, wherein Claims 1-3 and 5 are independent claims. Claims 1-3 and 5 are rejected under 35 U.S.C 102(b) as being anticipated by *Shirakata et al.* (U.S. Patent No. 6,618,352). Claims 4 and 7 are rejected under 35 U.S.C 103(a) as being unpatentable over *Shirakata* in view of *Bohnke* (U.S. Patent No. 6,731,594). Claim 6 is rejected under 35 U.S.C 103(a) as being unpatentable over *Shirakata* in view of *Huang et al.* (U.S. Patent No. 6,058,101). It is gratefully acknowledged that objected to Claim 8 would be allowed if rewritten in independent form including limitations of the base claim and any intervening claims. Claims 1 and 3 have been cancelled without prejudice, and Claim 4 has been amended into independent form.

Shirakata teaches a modulator, demodulator and transmission system for use in OFDM transmission. *Bohnke* teaches a transmission system for OFDM signals with optimized synchronization.

It is respectfully submitted that the Examiner is incorrect in asserting that *Shirakata* teaches each and every element of Claims 1-3 and 5. As set forth above, Claims 1 and 3 have been cancelled. Claim 4 has been amended to incorporate the recitations of Claim 3. Amended Claims 4 and 5 teach an apparatus of compensating for a frequency offset using a pilot symbol for a receiver (for a transmitter in Claim 2) in an OFDM/CDMA (Orthogonal Frequency Division Multiplexing/Code Division Multiple Access) system. It is noted that *Shirakata*, however, discloses no teaching of a CDMA system.

Claim 2 recites, in part, a parallel-to-serial (P/S) converter for serializing the IFFT transformed N data samples and outputting an OFDM symbol. The Examiner asserts that an Inverse Fast Fourier Transform (IFFT) section converts the parallel data to the time-domain S_t (a serial signal by applying the inverse Fourier transform). However, the IFFT is supplemented by a P/S converter in Claim 2, which is not present in *Shirakata*. Claim 2 further recites a guard interval

inserter for copying a part of the N data samples of the OFDM symbol and inserting the copied data samples in front of the OFDM symbol. The Examiner incorrectly asserts that *Shirakata* (Fig. 16, Guard Insertion Portion 207; col. 13, lines 30-31) teaches these elements. However, *Shirakata* provides no teaching regarding the location of insertion of the copied data samples in front of the OFDM symbol. For the reasons described above, *Shirakata* does not teach or suggest each and every element of Claim 2 and therefore does not anticipate Claim 2. Claim 2 is believed to be in condition for allowance.

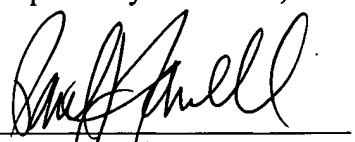
Claim 5 recites a first synchronizer for receiving an OFDM symbol stream and performing approximate frequency synchronization using the guard interval. While *Shirakata* discloses a carrier synchronizer, it does not disclose using the guard interval for frequency synchronization. Further, the Examiner acknowledges that *Shirakata* does not expressly disclose the guard interval remover in Fig. 9, but asserts that it is inherent that the OFDM receiver apply an inverse process to that of the OFDM transmitter, meaning removing the guard interval using a guard interval remover. However, Claim 5 recites not only the removal of the guard interval, but removal after performing frequency synchronization. *Shirakata* provides no disclosure as to when the removal takes place. Consequently, *Shirakata* neither discloses nor suggests each and every element of Claim 5 and therefore does not anticipate Claim 5. Claim 5 is believed to be in condition for allowance.

It is respectfully submitted that the Examiner is also incorrect in stating that Claims 4 and 7 are unpatentable over *Shirakata* in view of *Bohnke* under 35 U.S.C. § 103(a). As set forth above, Claim 4 has been rewritten in indepencent form and now incorporates the recitations of Claim 3. Claims 4 and 7 recite, in part, an averager for calculating a fine frequency offset by averaging the phase differences received in the frame unit, and outputting a second frequency offset compensation signal according to the fine frequency offset. The Examiner asserts that the Phase Correction Amt Calculating Unit 8f (Col. 18, lines 5-12) of

Shirakata teaches the averaging process. However, while calculations for correction are recited by *Shirakata*, they do not teach or suggest an averaging process. *Bohnke* does not remedy this shortcoming. Furthermore, the Examiner incorrectly states that calculating unit 8f (col. 18, lines 5-12) of *Shirakata* corresponds to an averager described in Claim 4. However, the averager as described in Claim 4 not only calculates a phase difference, but it also averages the phase differences in a frame unit. Because neither *Shirakata* nor *Bohnke* or in combination teach or suggest an averager or averaging process as set forth in Claims 4 and 7, Claims 4 and 7 are patentably distinct from the cited references. Dependent Claims 6-8 are believed to be patentable for at least the reasons given above with respect to the independent Claims from which they depend.

The application as now presented, containing Claims 2 and 4-8, is believed to be in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,



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